Privilege Escalation Vulnerability in WEB Functions of Air Conditioning Systems

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Mitsubishi Electric Corporation

■Overview

WEB functions of Mitsubishi Electric air conditioning systems have a privilege escalation vulnerability due to incorrect implementation of authentication algorithm (CWE-303). A malicious attacker may impersonate administrators to disclose configuration information of the air conditioning system and tamper with system's settings (e.g., operation information and configuration of air conditioning system) by exploiting this vulnerability (CVE-2021-20593).

■CVSS

CVE-2021-20593 CVSS:3.1/AV:N/AC:H/PR:L/UI:N/S:C/C:L/I:H/A:N Base score:7.1

■Affected products

<Models and Versions>

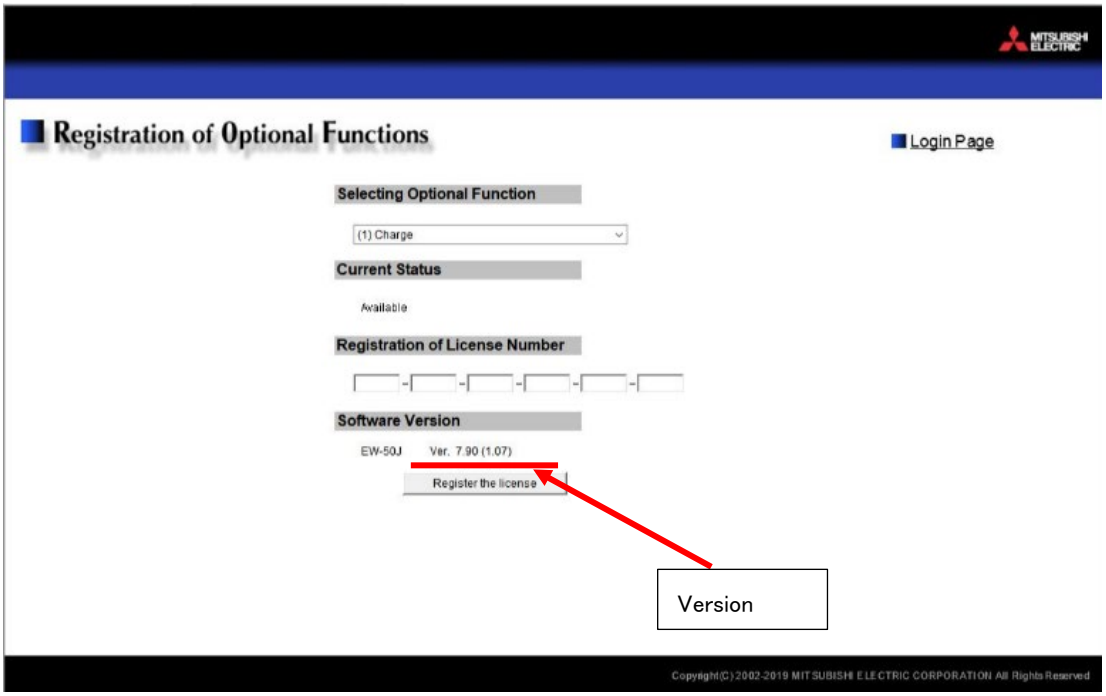
【Air Conditioning System / Centralized Controllers】

Model	Versions
G-50A	From ver.2.50 to ver. 3.35
GB-50A	From ver.2.50 to ver. 3.35
AG-150A-A	Ver.3.20 and prior
GB-50ADA-A	Ver.3.20 and prior
EB-50GU-A	Ver 7.09 and prior
AE-200A	Ver 7.93 and prior
AE-50A	Ver 7.93 and prior
EW-50A	Ver 7.93 and prior
TE-200A	Ver 7.93 and prior
TE-50A	Ver 7.93 and prior
TW-50A	Ver 7.93 and prior

<How to check the versions>

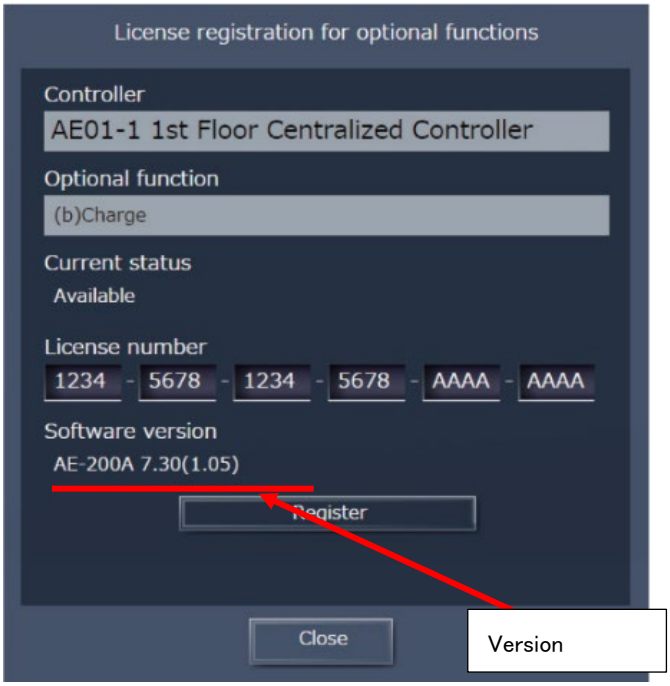
・G-50A、GB-50A, AG-150A-A, GB-50ADA-A, and EB-50GU-A.

By selecting [Registration of Optional Functions] on Login Page of their WEB screen, you can check the versions.



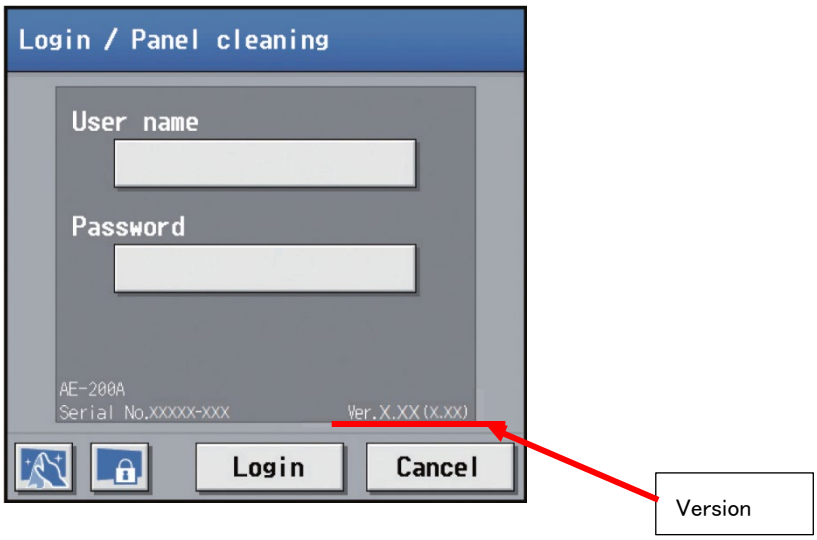
・AE-200A, AE-50A, EW-50A, TE-200A, TE-50A, and TW-50A

By selecting [License Registration] on Setting tab of the home screens after you log in as administrators on their WEB screen, you can check the versions.



・How to check versions on the screens of AG-150A-A, AE-200A, AE-50A, TE-200A, and TE-50A

By touching on the upper right corner of the normal screens to display the login window, you can check the versions.



■Description

WEB functions of our air conditioning systems have a privilege escalation vulnerability due to incorrect implementation of authentication algorithm (CWE-303).

■Impact

A malicious attacker may impersonate administrators to disclose configuration information of the air conditioning system and tamper with the system's settings (e.g., operation information and configuration of air conditioning system) by exploiting this vulnerability.

■Countermeasures

The following models do not have this issue if they are running the software firmware version (or after) as indicated below.

<Models and Versions>

【Air Conditioning System / Centralized Controllers】

Model	Versions
G-50A	Ver.3.37 or later
GB-50A	Ver.3.37 or later
AG-150A-A	Ver.3.21 or later
GB-50ADA-A	Ver.3.21 or later
EB-50GU-A	Ver 7.10 or later
AE-200A	Ver 7.95 or later
AE-50A	Ver 7.95 or later
EW-50A	Ver 7.95 or later
TE-200A	Ver 7.95 or later
TE-50A	Ver 7.95 or later
TW-50A	Ver 7.95 or later

<How to update>

Please contact your distributor or a Mitsubishi Electric representative. The updated software is available on MyLinkDrive.com.

■Mitigations

1. Update the software firmware as soon as possible.
2. Mitsubishi Electric recommends the following mitigation measures as noted in our equipment manuals to minimize the risk of exploiting this vulnerability,
    a. Use a VPN router, etc. when you connect your air conditioning system to the Internet.
    b. Use anti-virus software on your computer to connect your air conditioning system.
    c. Restrict access to your air conditioning system from untrusted networks and hosts.
    d. Change default user names and passwords.

■Acknowledgement

Mitsubishi Electric would like to thank Chizuru Toyama of TXOne IoT/ICS Security Research Labs working with Trend Micro's Zero Day Initiative who reported this vulnerability.

■Contact information

Please contact your local Mitsubishi Electric representative.